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(54) Title: SYNTHETIC SINGLE DOMAIN POLYPEPTIDES MIMICKING APOLIPOPROTEIN E AND METHODS OF USE

(57) Abstract: The present invention is directed to a synthetic apolipoprotein-E mimicking polypeptide consisting of a single domain. The invention is also directed to nucleic acid encoding the polypeptide, vectors including the nucleic acid, antibodies specific for the polypeptide, and compositions comprising the same and methods of using the same.

## INTERNATIONAL SEARCH REPORT

International application

PCT/US03/36268

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>														
IPC(7) : A61K 9/127, 38/00; C07K 7/00, 14/00 US CL : 424/450; 530/300; 514/2														
According to International Patent Classification (IPC) or to both national classification and IPC														
<b>B. FIELDS SEARCHED</b>														
Minimum documentation searched (classification system followed by classification symbols) U.S. : 424/450; 530/300; 514/2														
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched														
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet														
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>														
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.												
Y	DATA, G. et al. Cationic domain 141-150 of spaE covalently linked to a class A amphiphilic helix enhances atherogenic lipoprotein metabolism in vitro and in vivo. Journal of Lipid Research 2001 Vol. 42, pages 959-966, especially Abstract, and Materials and Methods sections, Synthesis of peptides.	1-8, 14-17, 19, 27, 31-34												
Y	ZAIOU, M. et al. Apolipoprotein E-low density lipoprotein receptor interaction: influence of basic residue and amphiphilic alpha helix organization in the ligand. Journal of Lipid Research 2000 Vol. 41, pages 1087-1095, especially Materials and Methods section, Overexpression of apuE in Escherichia coli, and Preparation of spaE3-22 kDa-DMPC complexes.	1-8, 14-17, 19, 27, 31-34												
Y	US 6,514,523 B1 (SPARKS) 4 February 2003 (04.02.2003), Abstract, column 3, line 1 through column 4, line 40.	1-8, 14-17, 19, 27, 31-34												
A	GIANTURCO, S. et al. Receptor-mediated uptake of hypertriglyceridemic very low density lipoproteins by normal human fibroblasts. Journal of Lipid Research 1982 Vol. 23, pages 984-993, especially Abstract	1-8, 14-17, 19, 27, 31-34												
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.														
<p>Special categories of cited documents:</p> <table> <tr> <td>"A"</td> <td>"T"</td> <td>later documents published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"B"</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"C"</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"D"</td> <td>"Z"</td> <td>document member of the same patent family</td> </tr> </table>			"A"	"T"	later documents published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"B"	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"C"	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"D"	"Z"	document member of the same patent family
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"D"	"Z"	document member of the same patent family												
Date of the actual completion of the international search 16 September 2003 (16.09.2003)	Date of m .. . . . . 17 NOV 2003													
Name and mailing address of the ISA/US Mail Stop PCT, APT 18A/US Commissioner of Patents P.O. Box 1450 Alexandria, Virginia 22313-1450	<p>Auth. _____, <i>Janet L. Liles</i> Attn: Janet L. Liles Telephone No. (571) 272-0947</p>													
Facsimile No. (703) 305-3230														

INTERNATIONAL SEARCH REPORT

PCT/US03/36268

**Continuation of B. FIELDS SEARCHED Item 3:**  
SCISEARCH, MEDLINE, BIOSIS, EMBASE, CAPLUS, PASCAL; search terms: apolipoprotein E, binding domain, lipoprotein metabolism, LDL binding domain

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US03/36268

**Box I. Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)**

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claim Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claim Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claim Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows.  
See PCT FORM 206 mailed August 8, 2005

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-8,14-17,19,27 and 31-34

Remark on Protest

  

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.